



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,768	06/28/2006	Masanobu Shimao	YAMAM-0185	5790
23599 7590 09/09/2009 MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201				
EXAMINER ANDREWS, MICHAEL				
ART UNIT 2834		PAPER NUMBER		
NOTIFICATION DATE 09/09/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@mwzb.com

# Office Action Summary

**Application No.**

10/584,768

**Applicant(s)**

SHIMAO ET AL.

**Examiner**

MICHAEL ANDREWS

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 June 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1 and 2 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 28 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☒ Other: JP 2003-049251.pdf

### **DETAILED ACTION**

This Office Action is responsive to the Applicant's communication filed June 28, 2006. In virtue of this communication, claims 1-2 are pending in the instant application.

#### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crane et al. (US 6,671,132 B1), hereinafter referred to as "Crane, in view of Shimao et al. (JP 2003-049251 A), hereinafter referred to as "Shimao".

With regard to claims 1-2, Crane discloses a voice coil motor [18] and an actuator [10] which use a magnetic circuit (see col. 1, lines 10-16, col. 2, lines 55-60, and figures 1-6) having:

yoke members [92] (see col. 3, lines 53-62) having no corrosion-resistant metallic surface films (Corrosion-resistant films are mentioned for the magnet only.); and

an Nd/Fe/B-based magnet [62] (see col. 5, lines 7-16 and col. 6, lines 31-36); wherein:

one, two or four of the said Nd/Fe/B-based magnets being mono-polar, dipolar or quadri-polar magnetized (see col. 4, lines 12-23 and figure 6); and

adhesively bonded to the yoke members to make an adhesion-bonded body of the magnet and yoke members (see col. 3, lines 32-38); and

the magnetic flux concentrated and flowing within the opposite gap formed between the magnet-yoke member and inside of the yoke members (see col. 3, lines 55-62);

except that Crane does not expressly disclose the particular composition of the yoke members or their physical properties, the ratio of the leak magnetic flux to the magnetic flux within the opposite gaps, or that the magnetic field strengths within the opposite gaps and in the inside of the yoke members is free from variations.

Shimao discloses a voice coil motor which uses a magnetic circuit (see [0001]), constituted of:

yoke members having no corrosion-resistant metallic surface films (see [0010] and the end of [0011]) prepared from a plate material of 0.1 to 5 mm thickness and having a saturation magnetic flux density of 1.3 to 2.3 Tesla, a maximum relative magnetic permeability of 200 to 22000 and a coercive force of 20 to 2000 A/m as formed from a plate material of a martensite-type stainless steel, ferrite-type stainless steel, precipitation-hardening stainless steel or Cr-type heat-resistant steel containing 0.0001 to 2% by mass of C, 0.0001 to 5% by mass of Si, 0.001 to 2% by mass of Mn, 0.0001 to 0.1% by mass of P, 0.0001 to 0.2% by mass of S, 0.0001 to 5% by mass of Al, 0.001 to 0.1% by mass of O, 0.0001 to 0.1% by mass of N, 0.0001 to 5% by mass of Ni and 0-10% by mass of Cr, with further addition of at least one alloying element selected from the group consisting of Ti, Co, Cu, Zr, Nb, V, Mo, W, Ta and B, the total amount of said alloying elements being 0.0001 to 5% by mass and the balance

excepting the additive and alloying elements and unavoidable impurity elements being Fe (see [0011] and Tables 1 and 2);

the ratios of the leak magnetic flux to the magnetic flux within the opposite gaps (see [0007]); and

the magnetic field strengths within the opposite gaps and in the inside of the yoke members (see [0027]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the magnetic circuit of Crane by forming the yoke material as taught by Shimao, for improving the corrosion resistance thereof, since Shimao teaches that such yoke constructions improve the magnetic flux density without the need for a corrosion-resistant metallic film (see [0051]).

The combination of Crane and Shimao still does not disclose the particular range specified for the amount, by mass, of nickel or chromium present in the yoke members, the specific ratio of the magnetic fluxes, or that the field strengths are entirely free from variations (Shimao does disclose, in [0027], that reducing the variation reduces eddy currents and improves corrosion resistance.). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to disclose similar values, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

***Citation of Relevant Prior Art***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art:

- Hamada (US 2004/0261909 A1) discloses a corrosion-resistant rare earth element magnet;
- Shimao et al. (US 6,547,889 B2) discloses an iron-based alloy sheet for magnetic yokes in hard-disk voice-coil motors;
- Shimao et al. (US 2003/0034091 A1) discloses an iron alloy strip for voice coil motor magnetic circuits;
- Minowa et al. (US 6,224,986 B1) discloses a rare earth permanent magnet of high corrosion resistance;
- Kikui et al. (US 6,211,762 B1) discloses a corrosion-resistant permanent magnet and method for manufacturing the same;
- Katsumi et al. (US 6,174,609 B1) discloses a rare earth permanent magnet of high corrosion resistance;
- Hamada et al. (US 5,316,595) discloses a process for producing Fe-B-R magnets with improved corrosion resistance;
- Hamamura et al. (US 4,942,098) discloses a corrosion resistant Fe-B-R type permanent magnet.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Andrews whose telephone number is (571)270-

7554. The examiner can normally be reached on Monday through Thursday between the hours of 7:30 and 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached at (571)272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/  
Supervisory Patent Examiner, Art Unit 2834

/M. A./  
Examiner, Art Unit 2834